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AUTHOR INDEX

A

Abrams, E.M., Implementation of the TOMS Contamination Control Requirements in the Former USSR, V. 35, No. 4, p. 19. *The American Total Ozone Mapping Spectrometer (TOMS) was integrated with the Russian Meteor-3 spacecraft and launched on August 15, 1991. This paper discusses the contamination control program established at the Meteor-3 spacecraft plant near Moscow and at the launch site in Plesetsk.* (CC: Cleanroom Design/Materials, Cleanroom Operation/Procedures)

Acito, B., An Evaluation of Proposed Federal Standard 209E (Airborne Particulate Cleanliness Classes in Cleanrooms and Clean Zones), V. 35, No. 4. p. 7. (Abstract—see Goldstein, K.)

B

Babcock, J.V., Application of Six Sigma Statistical Quality Control to Monitoring the Deposition of Contaminating Particles, V. 35, No. 5, p. 27. (Abstract—see Cooper, D.)

Barker, D.B., PWB Solder Life Calculations Under Thermal and Vibrational Loading, V. 35, No.1, p. 17. *The assumptions and details of fatigue life calculations under a combined thermal and vibrational load are discussed. A methodology is presented to evaluate the combined effects of simultaneous vibration and thermal cycling of solder joints.* (CA: Environmental Modeling/Analysis; DTE: Climatics and Thermal, Shock and Vibration; PR: Criteria and Standards)

Briner, D., A., Comparison of Manual and Automated Access to Microenvironments, V. 35, No. 4, p. 55. (Abstract—see Mitchell, K.)

Burkhard, A.H., Durability Analysis Using Fracture Mechanics for Avionics Integrity, V. 35, No. 2, p. 26. *This paper discusses the principal results of a research program to investigate the application of fracture mechanics techniques for life prediction of avionic assemblies.* (CC: Sources and Effects; DTE: Climatics and Thermal, Shock and Vibration; PR: Acquisition Policies, Stress Screening, Criteria and Standards)

C

Calatayud, R., Temperature and Vibration Results from Captive-Store Flight Tests Provide a Reliability Improvement Tool, V. 35, No. 5, p. 33. *This paper describes how the capture of measured response data provides a basis for developing life cycle and customer warranty tests for the ALQ-131 electronic countermeasure system.* (DTE: Climatics and Thermal, Shock and Vibration, Design/Test Tailoring; PR: Reliability Growth)

Caruso, H.J., An Updated Overview of Environmental Stress Screening Standards and Documents for Electronic Assemblies, V. 35, No. 2, p. 49. *This overview updates a*

previous summary (July/August 1989) using a similar format: a viewgraph style summary accompanied by a brief commentary. The commentaries are personal evaluations intended to establish a perspective for assessing the relationships or conflicts between the various documents and the potential implications of using them as guidance. (DTE: Climatics and Thermal, Criteria and Standards, Shock and Vibration; PR:Criteria and Standards)

Chae, S.K., Size Response Characteristics of a Wafer Surface Scanner for Non-Ideal, Real-World Particles, V. 35, No. 6, p. 45. *Uniform-sized particles of Al, Al_2O_3, Si, SiO_2, Si_3N_4, and Zn have been deposited onto bare silicon wafers for use as calibrations standards to study the response of wafer surface scanners to non-spherical, real-world particles.* (CC: Criteria and Standards; Identification, Measurement, and Monitoring)

Chalmers, R.H., Tailoring Shipboard Environmental Specifications, Part. I. Introduction, Temperature, Humidity, and Shock, V. 35, No. 2, p. 25. *This article was extracted from Technical Document (TD 207) published by the Naval Ocean Systems Center in April, 1991. The document presents a compilation of shipboard environmental data measured over the years. The applicability of the data to the fleet of today is discussed.* (DTE: Climatics and Thermal, Criteria and Standards, Shock and Vibration, Design/Test Tailoring; PR: Acquisition Policies)

Chalmers, R.H., Tailoring Shipboard Environmental Specifications, Part II. Single-Frequency Vibration, V. 35, No. 3, p. 27. *This article was extracted from Technical Document (TD 207) published by the Naval Ocean Systems Center in April, 1991. The document presents a compilation of shipboard environmental data measured over the years. The applicability of the data to the fleet of today is discussed.* (DTE: Criteria and Standards, Shock and Vibration, Test Tailoring)

Chalmers, R.H., Tailoring Shipboard Environmental Specifications, Part III. Random Vibration, V. 35, No. 4, p. 61. *This article was extracted from Technical Document (TD 207) published by the Naval Ocean Systems Center in April, 1991. The document presents a compilation of shipboard environmental data measured over the years. The applicability of the data to the fleet of today is discussed.* (DTE: Criteria and Standards, Shock and Vibration, Test Tailoring; PR: Acquisition Policies))

Chesters, S., Fractal-Based Characterization of Surface Texture, V. 35, No. 3, p. 37. (Abstract—see Grosser, K.)

Cooper, D.W., Application of Six Sigma Statistical Quality Control to Monitoring the Deposition of Contaminating Particles, V. 35, No. 5, p. 27. *The goal of this work was to assist in the control of particle deposition in manufacturing cleanrooms by the application of statistical quality control methods, specifically for the Class 1 cleanroom at the Semiconductor Research and Development Center at IBM East Fishkill.* (CC: Criteria and Standards; Identification, Measurement, and Monitoring)

Cooper, D.W., Selecting a Cost-Effective Number of Samples to Use at Preselected Locations, V. 35, No. 1, p. 41. (Abstract—see Grotzinger, S.J.)

Czajkowski, J., Optical system for Measurement of Pyrotechnic Test Accelerations, V. 35, No. 6, p. 25. (Abstract—see Lieberman, P.)

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Dasgupta, A., PWB Solder Life Calculations Under Thermal and Vibrational Loading, V. 35, No.1, p. 17. (Abstract—see Barker, D.B.)

Deal, B.E., Mechanisms of the HF/H_2O Vapor Phase Etching of SiO_2, V. 35, No. 3, p. 21. (Abstract—see Helms, C.R.)

DiPietro, F., Application of Six Sigma Statistical Quality Control to Monitor the Deposition of Contaminating Particles, V. 35, No. 5, p. 27. (Abstract—see Cooper, D.W.)

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Fernald, W., An Evaluation of Proposed Federal Standard 209E (Airborne Particulate Cleanliness Classes in Cleanrooms and Clean Zones), V. 35, No. 4. p. 7. (Abstract—see Goldstein, K.)

G

Goldstein, K., An Evaluation of Proposed Federal Standard 209E (Airborne Particulate Cleanliness Classes in Cleanrooms and Clean Zones), V. 35, No. 4. p. 7. *This article describes a field test conducted to evaluate the proposed revision of FED-STD-209E recently completed by the Institute of Environmental Sciences.* (CC: Criteria and Standards; Identification, Measurement, and Monitoring)

Gratzek, J.P., Results of the IES Cleanroom Flow Modeling Exercise, V. 35, No. 2, P. 37. (Abstract—see Kuehn, T.H.)

Grosser, K., Fractal-Based Characterization of Surface Texture, V. 35, No. 3, p. 37. *This paper describes a sensitive measurement method for controlling the surface roughness of high purity gas system distribution materials. The test data that use this method to compare various surface finishes and correlate roughness with surface cleanability are offered with explanations.* (CC: Identification, Measurement, and Monitoring)

Grotzinger, S.J., Selecting a Cost-Effective Number of Samples to Use at Preselected Locations, V. 35, No. 1, p. 41. *This paper describes how to calculate the optimal number of samples to be taken at each location so as to minimize the uncertainty in the mean over the entire region under study, subject to a cost constraint. Two criteria for measuring this uncertainty are considered. Also discussed are the differences between these approximate solutions and the true solutions, which are integers.* (CC: Criteria and Standards; Identification, Measurement, and Monitoring)

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Hansen, J., A Close Look at the Measurement of Shock Data, V. 35, No. 5, p. 39. (Abstract—see Hollowell, B.)

Hazen, J.D., Infrared Sensor Calibration Facility, V. 35, No. 1, p. 33. *This paper discusses the Boeing Infrared Sensor Calibration Facility which was designed and built for calibrating and testing new generation large aperture long wave infrared sensors, seekers, and related technologies.* (DTE: Climatics and Thermal, Shock and Vibration, Solar and Space Simulation)

Helms, C.R., Mechanisms of the HF/H_2O Vapor Phase Etching of SiO_2, V. 35, No. 3, p. 21. *Studies of the mechanisms responsible for HF/H_2O etching and cleaning of Si surfaces are discussed. A detailed model was developed that provides for calculating the onset of condensation as a function of wafer temperature and reactant partial pressures. The vapor phase etch rate data, as a function of wafer temperature, total HF and H_2O pressure, and partial pressure ratios, are presented in detail along with information on the model.* (CC: Sources and Effects)

Hodess, B., An Evaluation of Proposed Federal Standard 209E (Airborne Particulate Cleanliness Classes in Cleanrooms and Clean Zones), V. 35, No. 4. p. 7. (Abstract—see Goldstein, K.)

Hollowell, B., A Close Look at the Measurement of Shock Data, V. 35, No. 5, p. 39. *This paper addresses the characterization of the broadband response and the evaluation of its effects on standard measurement systems, transducer mounting and cabling techniques, measurement of inplane motion, and the problem of justifying/normalizing the results obtained by different data acquisition systems.* (CA: Digital Data Measurement/Processing; DTE: Shock and Vibration)

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Kasper, G., Fractal-Based Characterization of Surface Texture, V. 35, No. 3, p. 37. (Abstract—see Grosser, K.)

Kimball, E.W., Desert Storm Environmental Effects, V. 35, No. 4, p. 30. *This paper focuses on Saudi Arabian environmental extremes. Included is a discussion of equipment reliability when it is explosed to abnormally high temperatures, severe dust storms, and salt fog which would have been experienced during Desert Storm operations.* (DTE: Climatics and Thermal, Criteria and Standards, Design/Test Tailoring)

Knollenberg, R.G., Optical Particle Monitors, Counters, and Spectrometers: Performance Charactarization, Comparison, and Use, V. 35, No. 2, p. 64. *The sensitivity, resolution, and sample rate of optical particle monitors, counters, and spectrometers are described. Important differences in the conceptual design of each instrument class are detailed.* (CC: Identification, Measurement, and Monitoring)

Kuehn, T.H., Results of the IES Cleanroom Flow Modeling Exercise, V. 35, No. 2, P. 37. *Six contributed solutions to the cleanroom flow modeling exercise sponsored by the IES Computer Applications/Cleanroom Modeling and Evaluation Working Group are compared with each other and with experimental data obtained in a cleanroom configuration similar to that defined in the exercise.* (CA: Environmental Modeling/Analysis; CC: Cleanroom Design/Materials; Identification, Measurement, and Monitoring)

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Leak, C.E., Durability Analysis Using Fracture Mechanics for Avionics Integrity, V. 35, No. 2, p. 26. (Abstract—see Burkhard, A.H.)

Lee, H.S., Size Response Characteristics of a Wafer Surface Scanner for Non-Ideal, Real-World Particles, V. 35, No. 6, p. 45. (Abstract—see Chae, S.K.)

Levy, R., Combat Survival Without Halon 1301: Halon as a CFC Issue (Point of View), V. 35, No. 5, p. 14.

Lieberman, P., Optical System for Measurement of Pyrotechnic Test Accelerations, V. 35, No. 6, p. 25. *Several accelerometer systems were compared with each other, and also with a very accurate laser Doppler displacement meter in order to establish the frequency bands and acceleration amplitudes where the accelerometer systems are in error. The comparisons were made in simple sine wave and low acceleration amplitude environments, as well as in severe pyroshock environments.* (DTE: Shock and Vibration)

Lipp, L.J., Methodology of Developing a Combined Environmental Stress Schedule for Reliability Growth Testing, Part I. Determining the Environmental Stresses from an Operational Mode Summary/Mission Profile (OMS/MP), V. 35, No. 3, p. 45. *This article, the first of a three-part series, describes how to develop an environmental test schedule for military, ground-mobile equipment installed on a tracked vehicle based on the user's mission profile. The test schedules combine both operational and storage environmental stresses. Part I describes the equipment to be tested, provides a general overview of its mission profiles, and identifies appropriate climatic conditions.* (DTE: Climatics and Thermal, Criteria and Standards, Design/Test Tailoring; PR: Acquisition Policies, Criteria and Standards, Reliability Growth)

Lipp, L.J., Methodology of Developing a Combined Environmental Stress Schedule for Reliability Growth Testing, Part II. The Tracked Vehicle Vibration Environment, V. 35, No. 4, P. 45. *Part II of this three-part series discusses the complexities of the tracked-vehicle vibration environment.* (DTE: Design/Test Tailoring, Shock and Vibration)

Lipp, L.J., Designing a Reliability Test Schedule with Combined Environmental Schedules, Part III. V. 35,No. 6, p. 40. *Part III of this three-part series compares test profiles based on excluding benign environmental phases with profiles that include benign stress conditions.* (DTE:

Climatics and Thermal, Shock and Vibration, Design/Test Tailoring)

Liu, B.Y.H., Size Response Characteristics of a Wafer Surface Scanner for Non-Ideal, Real-World Particles, V. 35, No. 6, p. 45. (Abstract—see Chae, S.K.)

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Mitchell, K., A Comparison of Manual and Automated Access to Microenvironments, V. 35, No. 4, p. 55. *This paper examines the relative cleanliness of various modes of accessing microenvironment enclosures at varying cleanliness levels of ambient air surrounding the microenvironment. Ambient air cleanliness tested ranges from Class 10 to Class 10,000.* (CC: Cleanroom Design/Materials; Criteria and Standards; Identification, Measurement, and Monitoring)

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Nagarajan, R., Precision Cleaning in a Production Environment with High-Pressure Water, V. 35, No. 4, p. 34. *The emergence of high-pressure water spray as an effective and environmentally sound method of meeting increasing contamination control requirements for disk drives is discussed. The underlying cleaning mechanism is explained briefly. The potential advantages and disadvantages associated with high-pressure water spray cleaning are fully discussed, and recommendations for using this technology effectively are offered.* (CC: Criteria and Standards; Identification, Measurement, and Monitoring; Sources and Effects)

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